

CLAIMS

**[C001]** 1. An apparatus for induction heating, said apparatus comprising:  
a plurality of heat transfer plates, each of said heat transfer plates being disposed radially with respect to a core axis; and  
a plurality of core sections disposed between respective pairs of said heat transfer plates and shaped to form a cylindrical core assembly.

**[C002]** 2. The apparatus of claim 1 wherein said cylindrical core assembly has the shape of a circular cylinder.

**[C003]** 3. The apparatus of claim 1 further comprising a cylindrical outer shell disposed to surround said cylindrical core assembly.

**[C004]** 4. The apparatus of claim 3 wherein said cylindrical outer shell comprises a metal or combination of metals.

**[C005]** 5. The apparatus of claim 3 wherein said cylindrical outer shell comprises a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

**[C006]** 6. The apparatus of claim 1 wherein said heat transfer plates comprise a metal or combination of metals.

**[C007]** 7. The apparatus of claim 1 wherein said heat transfer plates comprise a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

**[C008]** 8. The apparatus of claim 1 wherein said core sections comprise a ferromagnetic material.

**[C009]** 9. The apparatus of claim 1 further comprising a coil winding disposed above said cylindrical core assembly.

**[C010]** 10. The apparatus of claim 1 further comprising an annular coil winding disposed at least partially inside an annular recess in said cylindrical core assembly.

**[C011]** 11. The apparatus of claim 1 further comprising a support platform disposed above said cylindrical core assembly.

**[C012]** 12. The apparatus of claim 1 further comprising a heat sink disposed below and thermally coupled to said cylindrical core assembly.

**[C013]** 13. An apparatus for induction heating, said apparatus comprising:

a plurality of heat transfer plates, each of said heat transfer plates being disposed radially with respect to a core axis;

a plurality of core sections disposed between respective pairs of said heat transfer plates and shaped to form a cylindrical core assembly;

a support platform disposed above said cylindrical core assembly; and

a heat sink disposed below and thermally coupled to said cylindrical core assembly.

**[C014]** 14. The apparatus of claim 13 wherein said cylindrical core assembly has the shape of a circular cylinder.

**[C015]** 15. The apparatus of claim 13 further comprising a cylindrical outer shell disposed to surround said cylindrical core assembly.

**[C016]** 16. The apparatus of claim 13 wherein said heat transfer plates comprise a metal or combination of metals.

**[C017]** 17. The apparatus of claim 13 wherein said core sections comprise a ferromagnetic material.

**[C018]** 18. The apparatus of claim 13 further comprising a coil winding disposed above said cylindrical core assembly.

**[C019]** 19. The apparatus of claim 13 further comprising an annular coil winding disposed at least partially inside an annular recess in said cylindrical core assembly.

**[C020]** 20. A method of making an apparatus for induction heating, said method comprising:

disposing a plurality of heat transfer plates radially with respect to a core axis; and

disposing a plurality of core sections between respective pairs of said heat transfer plates, said core sections being shaped to form a cylindrical core assembly.

**[C021]** 21. The method of claim 20 wherein said cylindrical core assembly has the shape of a circular cylinder.

**[C022]** 22. The method of claim 20 further comprising disposing a cylindrical outer shell to surround said cylindrical core assembly.

**[C023]** 23. The method of claim 20 wherein said heat transfer plates comprise a metal or combination of metals.

**[C024]** 24. The method of claim 20 wherein said heat transfer plates comprise a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

**[C025]** 25. The method of claim 20 wherein said core sections comprise a ferromagnetic material.

**[C026]** 26. The method of claim 20 further comprising disposing a coil winding above said cylindrical core assembly.

**[C027]** 27. The method of claim 20 further comprising disposing an annular coil winding at least partially inside an annular recess in said cylindrical core assembly.

**[C028]** 28. The method of claim 20 further comprising disposing a support platform above said cylindrical core assembly.

**[C029]** 29. The method of claim 20 further comprising thermally coupling a heat sink below said cylindrical core assembly.

**[C030]** 30. A method of making an apparatus for induction heating, said method comprising:

disposing a plurality of heat transfer plates radially with respect to a core axis;

disposing a plurality of core sections between respective pairs of said heat transfer plates, said core sections being shaped to form a cylindrical core assembly;

disposing a support platform above said cylindrical core assembly; and

thermally coupling a heat sink below said cylindrical core assembly.

**[C031]** 31. The method of claim 30 wherein said cylindrical core assembly has the shape of a circular cylinder.

**[C032]** 32. The method of claim 30 further comprising disposing a cylindrical outer shell to surround said cylindrical core assembly.

**[C033]** 33. The method of claim 30 wherein said heat transfer plates comprise a metal or combination of metals.

**[C034]** 34. The method of claim 30 wherein said heat transfer plates comprise a material or combination of materials selected from the group consisting of aluminum nitride and boron nitride.

**[C035]** 35. The method of claim 30 wherein said core sections comprise a ferromagnetic material.

**[C036]** 36. The method of claim 30 further comprising disposing a coil winding above said cylindrical core assembly.

**[C037]** 37. The method of claim 30 further comprising disposing an annular coil winding at least partially inside an annular recess in said cylindrical core assembly.